



NRC NEWS

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THE REVISED REACTOR OVERSIGHT PROCESS - - THE FIRST SIX MONTHS

CHAIRMAN RICHARD A. MESERVE NEI STRATEGIC ISSUES ADVISORY COMMITTEE MEETING OCTOBER 4, 2000

Good evening. I am pleased to have the opportunity to address this distinguished group of nuclear industry leaders and would like to thank Ralph Beedle for his invitation. As Ralph requested, my remarks are focused on the revised reactor oversight process. Before I begin my remarks on this subject, however, I would like to reflect briefly on some of the events of the past year.

Overview

I have just completed my 11th month as Chairman of the Nuclear Regulatory Commission. Although the time has flown by swiftly, I am struck by the significant changes within the nuclear power industry in this brief period. As the economic deregulation of electric utilities proceeds, we are seeing significant restructuring among our licensees and the start of the consolidation of nuclear generating capacity among a small group of operating companies. This has no doubt brought significant changes to the lives of many of those in this room.

Even more striking than industry consolidation is the changing attitude, at least in the business world, toward nuclear power. Only a short time ago, pundits claimed that the deregulation of electricity markets would result in the premature decommissioning of many nuclear plants. Now, in contrast, a great deal of attention is focused on reactor license extension. We now expect that as much as 85 percent of the current fleet will be the subject of applications for license extensions. If these are successful, our existing plants will contribute to our Nation's energy security well into this century. In the last few weeks, there even has been talk of new construction in the United States. In short, in the course of a single year, we have seen a remarkable change in the attitude toward nuclear generation in this country.

Unfortunately, I cannot claim that these developments in the nuclear industry can be causally connected to my assumption of the chairmanship of the NRC. The credit must go to an industry that has

achieved remarkable gains in both economic and safety performance over the past decade.

Nonetheless, I believe that the NRC has played a role in setting the stage for the change we are observing. We have tried to establish a regulatory system that is fair, that is understandable, that is predictable, and that reaches its decisions with reasonable dispatch. I hope this regulatory environment has helped to facilitate valuable change. Perhaps equally important for the longer term, we have embarked on a journey to reexamine our regulatory foundations in a fashion that should allow further improvement in our processes. It is this process of change on which I will focus this evening.

NRC Priorities

Before I turn to what is changing, however, let me first emphasize the unchanging bedrock on which we must build our regulatory system. The fulfillment of the promise of nuclear energy is crucially and absolutely dependent on the maintenance of safe operations. The NRC's -- and the industry's -- highest priority must be the protection of public health and safety. If we fail in this joint obligation, the emerging optimism about nuclear generation will quickly disappear.

To accomplish its mission in the coming years, the Commission has established a set of four strategic objectives: to maintain safety, to increase regulatory effectiveness and efficiency, to reduce unnecessary regulatory burden, and to increase public confidence. In order to define how to achieve these objectives, the Commission recently published its Strategic Plan for Fiscal Years 2000 to 2005. The plan describes how we intend to accomplish our mission in terms of fundamental principles and strategies, and sets out both goals and measures to enable us to gauge our performance. The first and highest priority-- maintaining safety -- reflects our commitment to ensuring that good safety practices are utilized in the management and operation of nuclear facilities. This will be a significant challenge for the NRC and for our licensees during a time of consolidation and increased economic pressures.

To address the second and third objectives -- increasing effectiveness and efficiency and reducing unnecessary regulatory burden -- the NRC is seeking to focus attention on issues of the highest safety significance. To accomplish this goal, the Commission is utilizing probabilistic risk assessments, sometimes called probabilistic safety assessments, as tools to "risk-inform" our activities and regulations. These tools are not free of uncertainties and thus they are used to inform our processes and decisions, not to provide the sole basis for them. I will say more about this effort in a moment.

Finally, we must recognize that building and maintaining public trust is critical to the achievement of success. The NRC must both be and be perceived to be an independent, open and conscientious regulator. To achieve this aim, we must make public participation in the regulatory process more accessible and we must be objective in our examination of nuclear power plant performance.

Achieving these objectives presents special challenges in a time of transition. We must be ready to adapt, as appropriate, to the effects of changing financial pressures on our licensees -- pressures to cut costs coupled with pressures to achieve improved operating performance. NRC's focus on our mission and our performance goals as articulated in the Strategic Plan should serve as our guide through this turbulent period. Because we intend for the Plan to be a living document that will allow us to accommodate and adapt to

changing circumstances, I invite your further comment and advice on it.

Informing Decisions with Understanding of Risks

As I mentioned, one of the key strategies for accomplishing our goals is to risk-inform our regulations through the use of Probabilistic Risk Analyses or PRAs. In addition to the revision of the oversight program that I will discuss in detail in a moment, we have initiated a program to evaluate the technical bases that underlie the requirements in 10 CFR Part 50 and to modify them, as appropriate, to focus on safety-significant issues. For example, we are moving forward with risk-informing so-called “special treatment” requirements, such as equipment seismic specifications and environmental qualifications. Other ongoing initiatives include the revision of the regulations or regulatory guidance governing decommissioning and fire protection. I envision a decade or more of work to apply safety insights in the reform of our regulatory requirements.

As we move forward with increased use of risk-informed techniques, we must also undertake the effort to explain our activities. Any modification of our regulatory processes cannot be satisfactorily achieved without acceptance of the approach by our staff and by our stakeholders. That is why the NRC is conducting mandatory PRA training for staff, holding workshops with the industry and the public, and generally reaching out to ensure our efforts in this area are both visible and understandable. We need to establish an understanding of our approach so that our stakeholders, including the general public, have confidence that our efforts to modify regulations are not whimsical, or designed to favor or to harm licensees, but rather are firmly based on the best information that is now available using the best analytical tools.

The NRC is committed to work to resolve the issues associated with risk-informing our regulations on a priority basis and to develop solutions in collaboration with our stakeholders. My vision for the final product of this complex process is a regulatory structure that is more aligned with safety, more internally consistent, and easier for our licensees and the public to understand and our staff to implement. As the process moves forward, I believe that the overall regulatory burden will be reduced without sacrificing safety.

Reactor Oversight Informed by Risk

The NRC’s Revised Reactor Oversight Process is an outstanding example of what can be accomplished through the collaborative work of the NRC and its stakeholders. We have made significant progress over the last several years in the development, pilot testing, and initial implementation of this process. In light of the fact that we have completed the first six months of the initial implementation, it perhaps is now appropriate to reflect on our progress and the areas that have been identified as requiring further refinement.

As you know, the NRC has been widely criticized over the years for the way in which it has evaluated the performance of licensees. The evaluations were often viewed as subjective; licensees were at times surprised by the NRC findings and believed that NRC’s conclusions were not supported by objective indicators of performance. Licensees perceived that inspectors imposed additional requirements that went beyond regulatory requirements. And the process was seen as too “retrospective,” often producing outdated assessments of licensee performance. As a result, licensees believed that they were not given due credit for the current performance of facilities. Moreover, the public did not understand our inspection process, with the

consequence that the process did not serve to inform public opinion adequately.

In response to these criticisms, the NRC chose to develop a new process for assessment of licensee performance. The goal was to have a process that would provide a more objective and understandable evaluation of plant performance, with a focus on operational aspects that were of the highest safety significance. The development of the revised reactor oversight process involved a significant effort by the NRC, NEI, nuclear utilities, and other external stakeholders, including public interest groups. As a result, the new oversight process can properly be seen as the product of a collaborative effort.

Nonetheless, when the revised process was approved for use across the fleet of plants in April of this year, the Commission described its action as “initial implementation.” This was a carefully chosen phrase, which was intended to capture the fact that adjustments and mid-course corrections would be necessary and appropriate. Minor adjustments have been made. But we are also aware that more substantial adjustments may be necessary to further improve the oversight process.

Our review of progress to date, and those of various stakeholders, have identified four areas that warrant additional consideration. These areas include performance indicators, fire protection, reactor security and the documentation of cross-cutting issues. I will discuss each in turn. Let me simply note, however, that at the time of the implementation of the new program, I had expected far more problems than we have in fact encountered. Although there are issues to be addressed and problems to be corrected, the relatively smooth initial period of implementation is a credit to the foresight of the staff, the industry, and the other stakeholders in designing the system.

Performance Indicators

Performance Indicators -- or PIs as they are often called -- have proven in general to be useful tools for assessment of licensee performance. Comments from the industry indicate that the program is manageable without undue effort. The results of our inspections have shown that licensee personnel generally understand the guidance documents and the reporting requirements. Our inspections in this area have not identified significant problems, which gives us confidence in the accuracy of the data we are receiving.

While we are satisfied with the overall concept of PIs, we recognize that further improvements should be made. The goal is to have indicators that provide data which, when combined with inspection results, serve to represent overall licensee performance accurately, while at the same time not leading to unintended consequences. PIs associated with initiating events and mitigating systems have been identified as requiring further improvement. While we are actively working with stakeholders to develop improved PIs, the process of revising a PI is expected to take at least 6 to 8 months so as to assure that any new PIs do not create new problems.

For example, we have been working with an industry group formed by NEI to revise two PIs, both of which deal with reactor scrams. Some in industry expressed concern at the time of initial implementation that the original PIs sent the wrong message to plant personnel, potentially providing incentives for an operator to make decisions with adverse safety consequences. The revised indicators will be subject to pilot testing at about 20 sites in the near future. NRC staff is assured that these revised PIs continue to meet the intent of the

original indicators, so that information adequate for assessing performance will still be obtained, but will not provide unintended incentives. Of course, external stakeholder input will be solicited in the development and piloting of revised PIs.

Another indicator that needs to be changed is the PI that tracks scrams followed by a loss of normal heat removal. With certain plant designs, an uncomplicated reactor trip can result in the isolation of several of the “normal heat removal” systems. At these facilities, although the plant might respond to a shutdown as designed, the event would nonetheless count against the PI. The original formulation of this PI unnecessarily penalized certain licensees because of such design features, and the PI will be changed accordingly.

The PI associated with the initiating events cornerstone, “Unplanned Power Changes,” is also seen to have potential unintended consequences. While a revision to that PI is not as far along as the two scram-related PIs, the staff is working with the industry to develop an alternative that can be pilot tested in the near future.

Another issue relating to Performance Indicators concerns the unavailability of safety systems. Valid questions have been raised regarding the way in which we count safety-system out-of-service time against both the PI and the Maintenance Rule goals and the way in which unavailability is calculated. There are also inconsistencies in the way in which “unavailability” is assessed in the maintenance rule, in the PI, and in the counterpart WANO indicator. An industry working group sponsored by NEI has been established to address these problems. The NRC will continue to work collaboratively with the group and other stakeholders to develop solutions to these issues.

Fire Protection

The second area associated with the reactor oversight process that warrants additional consideration is fire protection. Questions have been raised regarding inspections to examine the effect of electrical faults on equipment associated with safe shutdown. As you may know, NEI and the BWR Owner’s Group are engaged in an initiative to enable better definition of electrical fault characteristics related to fire protection and safe shutdown. As a result, the NRC has decided to postpone inspections in this area and to take no enforcement action while work is in progress to resolve these circuit analysis issues.

A second issue in the area of fire protection that warrants attention concerns the use of the Significance Determination Process (or SDP) for fire protection findings. Although the fire protection SDP is considered to be sufficient for evaluating findings, additional guidance is needed to ensure that it is applied consistently and appropriately. It appears that the staff at times has used overly conservative assumptions and unrealistic fire scenarios in characterizing the potential impact of fire-related inspection findings. Better guidance is being developed to clarify these issues with the goal of ensuring the SDP is utilized in a consistent and predictable manner.

Reactor Security

A third area that warrants further consideration concerns the treatment of reactor security. I am aware that stakeholders have raised a number of issues as a result of the manner in which Operational

Safeguards Response Evaluations (or OSREs) are conducted and results are evaluated.

Let me begin by saying that the Commission recognizes that a substantial amount of work remains to be done in connection with the NRC's approach to security, wholly apart from issues related to inspection. I am particularly mindful of the fact that our policy on security matters has not been transparent and that we have not been consistent in our requirements. Although the design-basis threat

defined in our regulations (10 CFR Part 73.1) has been fairly stable, the adversary characteristics that define the details were revealed to licensees in the past only in the context of an OSRE and have varied over time and from site to site. In short, we have not had a disciplined process within the NRC to define the fundamental obligations of our licensees and we have not clearly and consistently communicated our expectations.

As a first step, the Office of Nuclear Reactor Regulation has sought to communicate a common set of guidelines that will be used for future OSREs. For example, the staff has developed and transmitted the specific list of adversary characteristics to the industry. We have received positive feedback as a result of this action and believe it has helped to clarify the agency's expectations. The staff is also working diligently with its stakeholders to enable the agency's endorsement of an acceptable Safeguards Performance Assessment Program, which could replace the OSRE program as an interim pilot program. In short, we are working with our stakeholders to bring predictability to the existing program. We will also continue to efforts to improve communications in this area.

For the longer term, the Commission is engaged in rethinking our fundamental policies in the area of security requirements. The Commission is working with the staff in developing a process for the systematic evaluation of the design basis threat and the adversary characteristics to which our licensees are expected to respond. We now await a rulemaking plan from the staff on the revision of the regulation that defines licensee obligations for security (10 CFR Part 73.55). I expect that the Commission will devote considerable effort in this area over the coming months.

Let me now turn to the classification of the findings from the OSREs in the reactor oversight process. The original approach for determining the significance of the OSRE findings was to use the reactor SDP to assess the significance of the equipment disabled by the adversary force. It has turned out, however, that this approach was somewhat misguided; we did not appropriately consider some of the unique aspects of OSRE exercises and their impact on traditional risk analysis. As a result, the staff is currently reviewing alternative approaches for determining the significance of these security-related findings. I expect adjustments to be made in this area as well.

Cross Cutting Issues

A fourth aspect of the new reactor oversight process that is undergoing consideration is the documentation of cross-cutting issues as so called "no-color" findings. From the start of the revised process, the Commission recognized that some issues should be documented even though they could not be evaluated under a specific cornerstone and its associated SDP. To address this concern, the new program contemplated that substantive cross-cutting issues -- such as those relating to human performance, problem identification and resolution, or a safety-conscious work environment -- could be documented in inspection

reports. Since these issues are not typically processed for risk characterization by the SDP, they are not assigned a color to reflect the seriousness of the finding.

The staff and the Commission are sensitive to the fact that findings relating to cross-cutting issues have the potential to inject subjectivity into the inspection process. Moreover, I am aware that there have been some inconsistencies in the use of no-color findings. As a result, the staff is revising the guidance so that cross-cutting issues will be documented only in situations that involve findings that are more than minor in nature and that can be evaluated by the significance determination process.

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In sum, we recognize that there are some important areas in which the new oversight process would benefit from revision. We are conducting mid-cycle workshops to obtain feedback, including one in which Oliver Kingsley and I participated yesterday. The staff is developing internal metrics to assess the performance of the program. Moreover, a review panel, comprising both NRC staff and external stakeholders, will evaluate the initial implementation of the program. Our goal is to define more precisely those areas to which more attention should be given, as well as to develop possible solutions. While the first six months of the Oversight program have generally been successful, we are aware of issues that warrant our attention. We intend to improve the program as it goes forward.

Longer Range Issues

Before closing, I would like to share with you some preliminary thoughts about two longer range issues that we face together. I will only touch on these now, with the modest objective of getting them on the table for your thoughtful consideration.

One lesson I learned quickly when I became Chairman is that too often we are forced by events to focus our attention on the day's most immediate problems. We have too little time, if any, to step back from the current storm to consider the larger climate, how it might change in the future, and what we need to do to prepare for it. My point is that with urgent issues to be addressed every day, we often push consideration of longer range issues to the future, often not worrying if we will get to the issues before the future gets to us. I suspect that everyone in this audience has similar experiences.

We have an obligation, however, to make time now to consider longer range issues so that we -- and our successors -- will be better able to manage the day-to-day issues that arise in the future. I want to describe two such issues for you now: managing low activity wastes and maintaining the core technical competence of the NRC. Both issues are, I would argue, in the vital long-term interests of the nuclear power industry.

First, on the question of low activity wastes, let me simply note that the future of low level waste disposal in this country is precarious. Our policies for low level waste disposal are simply not working. Even establishing a policy on release of slightly radioactive materials when risks are negligible (currently being considered under the rubric of "clearance") is proving to be difficult. As a Nation, we need to take a fresh look at waste issues with the aim of identifying alternative management strategies -- disposal and reuse -- that have better chances of success. We have to address these problems sooner or later.

Second, on the question of maintaining the core technical competence of the NRC, let me note that it is in both the public interest and the regulated industries' interest that the NRC have the capacity to reach sound technical judgments efficiently. To be able to respond to changing environments -- not just in the nuclear power industry but in other civilian uses of radioactive materials, such as in nuclear medicine -- the NRC has to be both sophisticated and agile. Your operations depend, for example, on our ability to write technically sound, risk-informed rules; to make sound licensing decisions without undue delay; and to conduct fair and meaningful oversight. The public depends on our ability to reach independent judgments on safety. We all benefit from a core NRC staff that is technically competent in the performance of these tasks and that is recognized as such.

In my judgment, the current NRC staff has the necessary qualifications and skills. The future, however, is uncertain. We have experienced declining real budgets over a number of years (until the

slight upturn in this fiscal year). Moreover, we have had a loss of technically skilled personnel not only because of the loss of Full Time Equivalents (FTEs) in the budget, but also because budgetary retrenchment adversely affects morale. Further, we confront an aging demographic profile among our scientists and engineers. Our financial inability to make grants and contracts to universities has reduced opportunities for access to that community, as well as for the education and training of future nuclear scientists and engineers. And the government is challenged in recruiting the best and brightest. Combined, these circumstances should raise red flags.

I do not offer solutions to either the nuclear waste or the technical competency problems to you this evening. I mention them now only because such matters should be on the agenda for both the NRC and our stakeholders and I hope to stimulate your thoughts about them.

Conclusion

I would like to close by emphasizing again that, although the means by which we seek to attain our objectives may be changing, our fundamental mission -- the achievement of reasonable protection of public health and safety -- remains our abiding preoccupation. Our success is dependent on continuous and open dialogue with those we regulate and with the general public. I therefore welcome the opportunity to interact with you.

It has been a pleasure meeting with you this evening. Thank you.